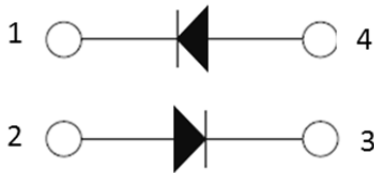


SiC SBD Anti-Parallel Power Module

$$V_{RRM} = 600V$$

$$I_{DAV} = 20A @ T_C = 125^{\circ}C$$



Anti-Parallel

Features

- **SiC Schottky Diode**
 - Zero reverse recovery
 - Zero forward recovery
 - Temperature Independent switching behavior
 - Positive temperature coefficient on V_f
- Low stray inductance
- High junction temperature operation

Applications

- Supplies for DC power equipment
- Rectifier for induction heating
- Welding equipment
- High temperature and rectifiers



Benefits

- Outstanding performance at high frequency operation
- Low losses and Low EMI noises
- Very rugged and easy mount
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- Easy paralleling due to positive T_c of V_f
- RoHS Compliant

Absolute Maximum Ratings ($T_j=25^{\circ}C$ unless otherwise specified)

Parameters	Symbol	Conditions	Specifications	Units
Maximum Reverse Voltage	V_{RRM}		600	V
Average Forward Current (per SBD)	I_{DAV}	$T_C = 25^{\circ}C$	46	A
		$T_C = 125^{\circ}C$	25	A
Non-repetitive Forward Surge Current	I_{FSM}	$tp=8.3\text{ ms}, T_C = 25^{\circ}C$	192	A
		$tp=10\ \mu s, T_C = 25^{\circ}C$	480	A
Operating Junction Temperature	T_j		-55 ~ 175	$^{\circ}C$
Storage Temperature	T_{STG}		-55 ~ 150	$^{\circ}C$

Electrical Characteristics ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

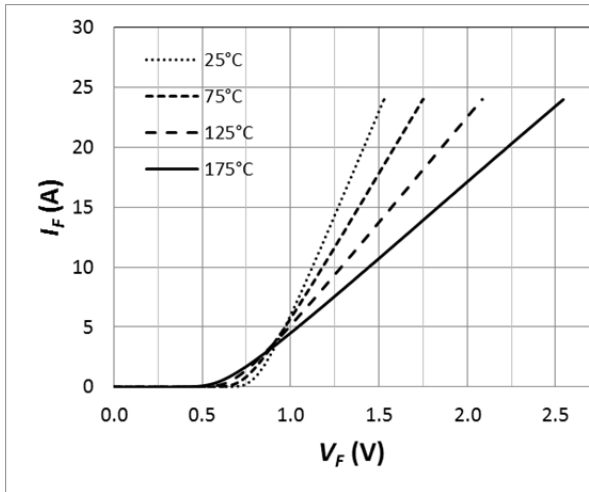
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Maximum peak repetitive reverse voltage	V_{RRM}		600	--	--	V
Maximum Reverse Leakage Current per diode	I_{RM}	$V_R = 600\text{V}, T_j = 25^{\circ}\text{C}$	--	2.6	200	μA
		$V_R = 600\text{V}, T_j = 150^{\circ}\text{C}$	--	970	--	μA
Diode Forward Voltage	V_F	$I_F = 20\text{A}, T_j = 25^{\circ}\text{C}$	--	1.5	1.7	V
		$I_F = 20\text{A}, T_j = 175^{\circ}\text{C}$	--	2.5	2.8	V
Total Capacitive Charge	Q_C	$V_R=600\text{V}, I_F<I_F,\text{max}$	--	50	--	nC
Switching Time	t_c	$di_F/dt = 200\text{A}/\mu\text{s}, T_j = 175^{\circ}\text{C}$	--	--	10	ns
Total Capacitance	C	$V_R = 1\text{V}, f = 1\text{MHz}$	--	974	--	pF
		$V_R = 300\text{V}, f = 1\text{MHz}$	--	86	--	pF
		$V_R = 600\text{V}, f = 1\text{MHz}$	--	82	--	pF

Thermal and Package Characteristics ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

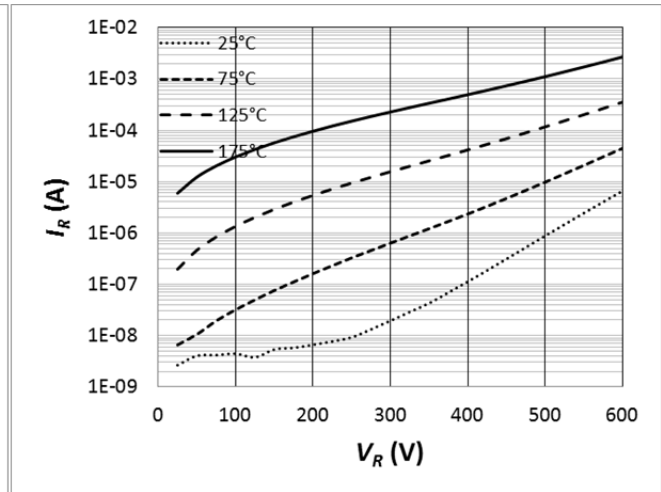
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Junction to Case Thermal Resistance	R_{THJC}	Per Diode	--	--	0.77	$^{\circ}\text{C}/\text{W}$
Junction to Ambient Thermal Resistance	R_{THJA}	Per Diode	--	--	20	$^{\circ}\text{C}/\text{W}$
Mounting Torque	M_d				1.5	N-m
Terminal Connection Torque	M_{dt}		1.3	--	1.5	N-m
Package Weight	W_t			32		g
Isolation Voltage	V_{ISOL}	$I_{ISOL} < 1\text{mA}, 50/60\text{Hz}, t=1\text{min}$	2500	V		

Product Number and Pin Descriptions

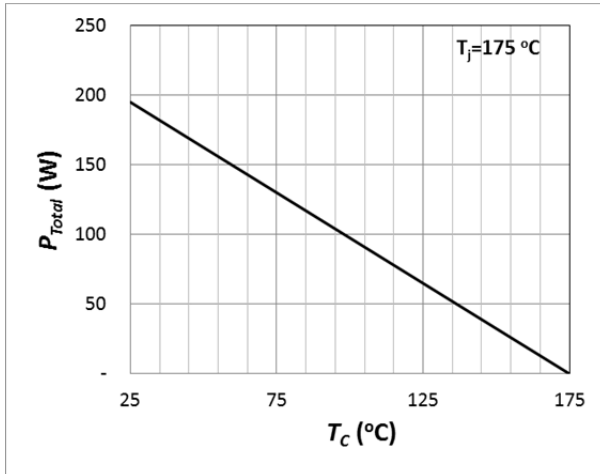
Part Number	Rating	Pin 1	Pin 2	Pin 3	Pin 4
GHXS020A060S-D4	600V,20A	Cathode 1	Anode 2	Cathode 2	Anode 1



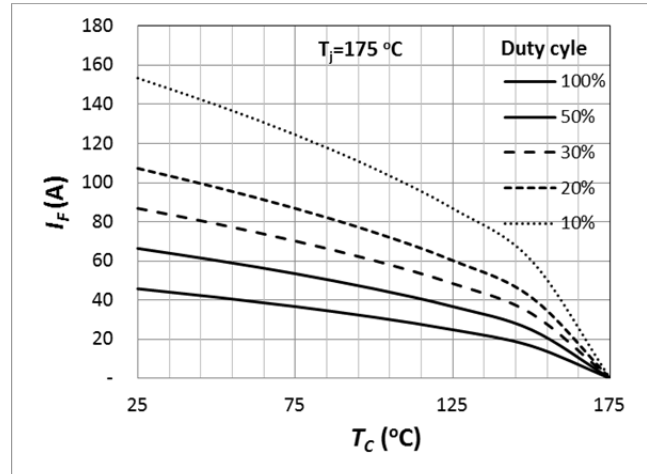
Forward Characteristics (parameterized on Tj)



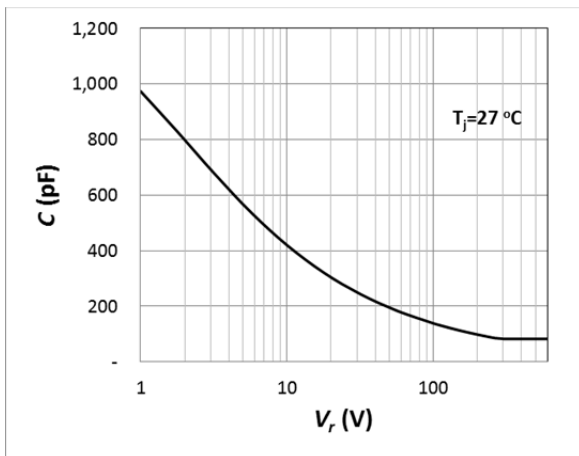
Reverse Characteristics (parameterized on Tj)



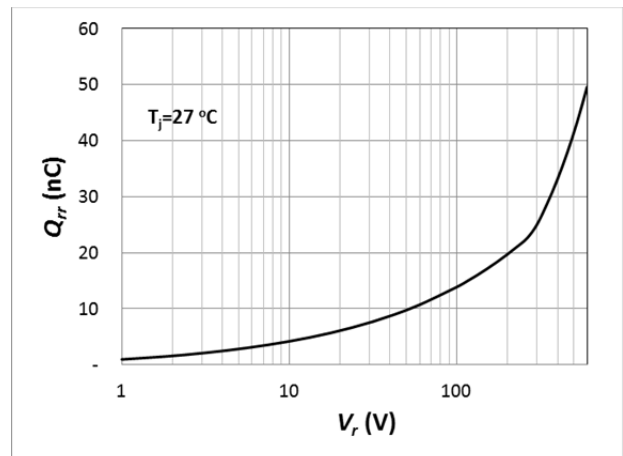
Power Derating



Current Derating

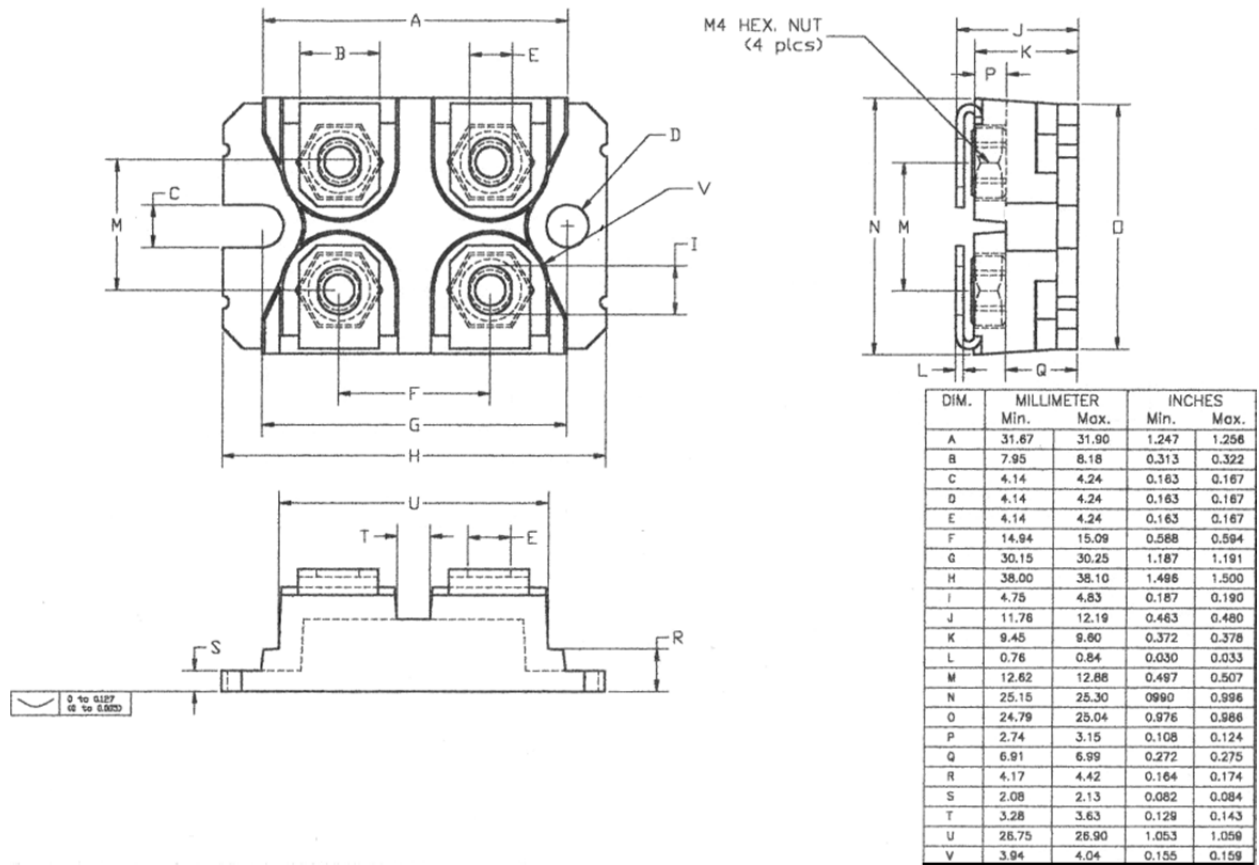


Capacitance Curve



Recovery Charge

SOT-227 Package Outline



Revision History

Date	Revision	Notes
9/6/2013	1.0	Initial release
6/4/2014	1.1	Add the part number, pin assignment table.
12/29/2014	1.2	Change the pin assignment table (swapped anode and cathode)

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Notes

- **RoHS Compliance**
The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented March, 2013. RoHS Declarations for this product can be obtained from the Product Documentation sections of www.gptechgroup.com.
- **REACH Compliance**
REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact our office at GPTG Headquarters in Lake Forest, California to insure you get the most up-to-date REACH SVHC Declaration.
REACH banned substance information (REACH Article 67) is also available upon request.
- This product has not been designed or tested for use in, and is not intended for use in, applications implanted into the human body nor in applications in which failure of the product could lead to death, personal injury or property damage, including but not limited to equipment used in the operation of nuclear facilities, life-support machines, cardiac defibrillators or similar emergency medical equipment, aircraft navigation or communication or control systems, or air traffic control.
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